

**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554**

In the Matter of)	
)	
Improving Public Safety Communications)	WT Docket No. 02-55
in the 800 MHz Band)	
)	
Consolidating the 800 and 900 MHz)	
Industrial/Land Transportation and)	
Business Pool Channels)	
)	
Amendment of Part 2 of the)	ET Docket No. 00-258
Commission's Rules to Allocate Spectrum)	
Below 3 GHz for Mobile and Fixed)	
Services to Support the Introduction of)	
New Advanced Wireless Services,)	
including Third Generation Wireless)	
Systems)	
)	ET Docket No. 95-18
Amendment of Section 2.106 of the)	
Commission's Rules to Allocate Spectrum)	
at 2 GHz for use by the Mobile Satellite)	
Service)	

**COMMENTS OF MICROWAVE RADIO COMMUNICATIONS
IN SUPPORT OF THE JOINT PETITION FOR WAIVER**

Microwave Radio Communications (MRC) hereby submits its comments in support of the Joint Petition for Waiver of Sprint Nextel Corporation, the Association for Maximum Service Television, Inc., the National Association of Broadcasters, and the Society of Broadcast Engineers (Petitioners), filed in the above captioned proceedings.¹ MRC is the leading manufacturer of microwave systems for television operations worldwide and a key supplier for U.S. public safety and military operations. With more than 40 years of experience, MRC has

¹ Joint Petition for Waiver, WT Docket No. 02-55 (September 4, 2007) (Waiver Petition).

developed expertise in the design and manufacture of innovative microwave solutions. Today, MRC has the largest installed base of video microwave products in the world and is the nation's largest manufacturer of BAS equipment. As discussed below, MRC urges the FCC to grant the Waiver Request.

I. The BAS Relocation Is More Complicated Than Anyone Expected

The BAS relocation involves the retuning of nearly 1,000 broadcast stations from channels consisting of either 17 or 18 megahertz to narrower 12 megahertz channels in the 2025-2110 MHz band. As a result, a large number of licensees require significant redesign of their existing systems and new equipment to operate on these narrower channels. Many of these systems also have been incrementally customized and upgraded over the past 30 years. Combining a station's "old" infrastructure with its new BAS system can raise unique operational and technical issues for the BAS manufacturers, installers and software designers alike. Moreover, because each system is uniquely designed, many interoperability issues do not emerge until the system is fully installed and integrated in the field.

MRC has spent considerable time consulting with each licensee on how best to replace its equipment and redesign its BAS system to operate on the new band plan. For each system, MRC reviews the broadcaster's existing inventory equipment, works with the broadcaster to develop a systems block diagram to confirm equipment in place and needed for redesign and to confirm system functionality and, based on the broadcaster's needs, provides the BAS licensee and Sprint Nextel with price quotes for replacement equipment. The BAS licensee and Sprint Nextel then use this information, along with price quotes from

other vendors, to determine which equipment they want and how best to redesign the complex BAS network.

It is not uncommon during a BAS project for MRC and the licensee to go through multiple rounds of block diagrams and price quotes or “redos,” requiring the associated purchase order to be amended. Purchase order “redos” for missing items also occur frequently, especially for receive sites, which have been built over many years and are often poorly documented. Other “redos” are caused by the passage of time between when MRC first receives a purchase order and when it ships the equipment. For example, MRC has had to revise its price quotes due to recent increases in the Consumer Price Index, the weakening dollar (which affects the rates MRC owes to international suppliers), and increased gas prices (which affect transport costs). In most cases where the price quote changes, MRC must resubmit the purchase order for review and approval by the licensee and Sprint Nextel.

In addition, several new entrants have begun to offer BAS installation and integration services to meet the greatly increased demand for integration services. While these services are critical to keeping the relocation process moving, many of these new entrants have little or no experience with BAS receive sites or MRC’s equipment. MRC continues to work with these companies to increase their knowledge and expertise; however, the new integrators require time to become familiar with the equipment, the troubleshooting process, and the likely resolution to routine operational

challenges facing any complex, integrated system comprised of equipment from multiple independent vendors.

Industry stakeholders also face a shortage of experienced workers necessary to complete the band reassignment. Working in close cooperation with Sprint Nextel, MRC has increased its workforce by over 40% to prepare for the increased demands for equipment that the BAS retuning effort has required. MRC employees face the daily challenge of getting some of the world's most innovative technologies to work in some of the world's most hazardous places, and only a limited number of workers possess the training, certification and skills necessary to conduct elements of the BAS relocation. MRC's thermal design engineers, for example, must possess a broad understanding of all aspects of mechanical design development, including system architecture, detail design and compliance requirements. Its product technicians must not only have the experience and training to test, troubleshoot and repair electromechanical products, but also must understand high power radiofrequency, analog and digital modulation techniques, analog circuitry, digital circuitry, and microprocessor-embedded control circuitry.

Despite its best efforts to recruit and retain employees, MRC currently has, because of the growth in its business from the BAS retuning project, a number of openings for skilled professionals, including a software engineer, a mechanical/thermal design engineer, a video engineer, technical support personnel, and several systems engineers. Thus, even assuming that the broadcast parties proceed to complete their orders and other tasks with all due

haste, the shortage of specially trained workers will delay the BAS manufacturing and installation process, which has created downstream delays through the lifespan of the BAS relocation project.

II. MRC Has Worked Hard To Overcome These Challenges And Expedite The Relocation

In response to the large demand created by the BAS relocation, MRC has taken a number of steps, including the following:

- increasing the number of its employees by over 40%, including hiring three top system support engineers,
- adding new subcontractors and expanded existing subcontractor relationships,
- increasing repair capacity by two thirds,
- adding both factory and on-site training for all MRC technology,
- increasing the inventory of “ready to ship” stock,
- extending technical support and customer service hours, and
- acquiring substantial new manufacturing, research and development, and warehouse space.

The BAS project was the key driver in MRC’s parent company, Vislink plc, acquiring Link Research Ltd., a prime technology supplier that owns the intellectual property rights to state-of-the-art digital coding and decoding technologies. Recently, Vislink also acquired Western Technical Services (WTS), a company with over 17 years’ experience installing, integrating and maintaining BAS communications systems. MRC’s collaboration with Link Research and WTS has fostered greater innovation and more efficient development, design and integration of BAS systems.

MRC has worked hard to minimize technical problems during the transition. Among other things, MRC has expanded its testing facilities and processes to permit “staging” of complete systems and unified testing of all component pieces, down to the level of a given length of interconnection cable. It has also increased its use of automated testing and verification, and increased its repair capacity. By replacing some of MRC’s manual testing and verification procedures with more automated processes, as well as implementing unified system processes, MRC has increased its efficiency and enhanced its ability to ship operational systems in a timely manner.

MRC has worked with Sprint Nextel to develop new business protocols, including detailed checklists for inventorying existing equipment and identifying comparable replacements, to help speed the transition. Although implementing these protocols has required additional manpower (and in-house training), the new approach has already yielded dramatic results. For example, MRC regional sales managers and system engineers work with each customer to help it develop a new system that will meet its particular needs. As a result of these efforts, recent results indicate that less than 30% of MRC’s BAS purchase orders have required a change order after issuance; in comparison, greater than 80% of MRC’s regular, non-BAS purchase orders have required change orders historically. Reducing the incidence of BAS-related change orders by more than 60%, as compared to the historic average, has helped minimize delays that would otherwise plague the relocation process.

III. Conclusion

MRC is making every effort to make the 2 GHz reassignment run as smoothly as possible. As discussed above, however, a great deal of work remains, and additional delays are likely to occur. MRC accordingly urges the Commission to grant the Waiver Request.

Respectfully submitted,

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